NEW HORIZON
COLLEGE OF ENGINEERING
New Horizon Knowledge Park, Ring Road, Marathalli
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA
DEPARTMENT OF MECHANICAL ENGINEERING

Industrial Visit Report

Company Name: Trinity NDT Weld Solutions Pvt Ltd

Date of Visit: 27/11/2024

Location: Aspire, #491, Site no. 12, 14th cross, 4th phase, Peenya Industrial Area, Bengaluru 560058.

Department: Mechanical Engineering

Accompanied by: Dr. Nagabhushana N

Duration: 09:30 AM - 04:30 PM

1. Objective of the Visit

The primary goal of the industrial visit was to expose students from Department of Mechanical Engineering to real-world applications of engineering principles in the Non-Destructive Testing industry. The visit aimed to provide insights into the various processes involved in testing of manufactured materials without having to damage them as well as to highlight innovations in upcoming testing practices.

2. Company Overview

Trinity NDT and Weld Solutions is a leading Bangalore-based company specializing in non-destructive testing (NDT), welding inspections, and related quality assurance services. Renowned for its advanced testing techniques and industry expertise, the company caters to sectors like aerospace, automotive, construction, and manufacturing.

With state-of-the-art equipment and certified professionals, Trinity NDT offers services such as ultrasonic testing, radiographic testing, magnetic particle testing, and dye penetrant testing to ensure material and component integrity without causing damage. The company also provides welding consultancy, training, and certification to meet stringent industry standards.

3. Key Areas of Focus During the Visit

a. Introduction to Non Destructive Testing

The visit began with a brief introduction to the company, its history, and its core business operations in India. The company representatives highlighted Trinity's focus on being the best company of its time in the field of Non Destructive Testing and Welding solutions by making sure every intricate instruction during a test is followed to the dot. They also educated the students on how NDT can be a major career opportunity for mechanical engineerinstudents .

b. Overview of Non Destructive Testing methods

Non-Destructive Testing (NDT) is a group of analysis techniques used to evaluate the properties, integrity, and performance of materials, components, or systems without causing damage. It ensures safety, reliability, and quality in various industries like aerospace, automotive, construction, and manufacturing.

Common NDT Methods:

1. **Ultrasonic Testing (UT):** Uses high-frequency sound waves to detect internal flaws or measure material thickness.
2. **Radiographic Testing (RT):** Employs X-rays or gamma rays to create images of internal structures, identifying cracks or voids.
3. **Magnetic Particle Testing (MPT):** Detects surface and near-surface defects in ferromagnetic materials by observing magnetic field disturbances.
4. **Dye Penetrant Testing (DPT):** Highlights surface cracks by applying a penetrant liquid, followed by a developer to reveal flaws.
5. **Eddy Current Testing (ECT):** Uses electromagnetic induction to detect surface and subsurface defects in conductive materials.

c. Emphasis on Sustainability

Trinity NDT and Weld Solutions place a strong emphasis on sustainability by integrating eco-friendly practices into their testing and inspection processes. They prioritize methods that minimize waste, reduce energy consumption, and avoid the use of hazardous materials.

By leveraging advanced non-destructive testing techniques, the company helps industries extend the lifespan of materials and components, reducing the need for frequent replacements and conserving resources. Additionally, their focus on quality assurance ensures that manufacturing defects are detected early, preventing costly failures and promoting efficient use of materials.

d. Research and Development

The students visited multiple labs and research rooms where they were given live demonstrations of the different kinds of testing done on products too. The live demonstrations were visioned to be a platform for the students to understand the complexities and processes of NDT with ease.

4. Key Learnings

The industrial visit provided students with valuable insights into:

1. **Understanding NDT Techniques:** Gaining practical knowledge of various non-destructive testing methods, such as ultrasonic, radiographic, magnetic particle, and dye penetrant testing.
2. **Applications of NDT:** Learning how these techniques are applied across industries to ensure material integrity, safety, and reliability.
3. **Welding Processes:** Exposure to advanced welding methods and their role in ensuring structural strength and durability.
4. **Quality Assurance:** Understanding the importance of testing and inspection in maintaining high-quality standards in manufacturing and construction.
5. **Industry Standards:** Familiarization with industrial norms, certifications, and the role of NDT in meeting compliance requirements.
6. **Career Insights:** Exploring potential career opportunities in NDT and welding technologies and understanding the skills required in these fields.

5. Student Feedback

Students expressed their appreciation for the visit, noting that it provided them with a deeper understanding of industrial practices and enhanced their appreciation of the engineering challenges and newer options for their career approaches in the complete mechanical sector. They particularly valued the insights into the developing innovations in the new methods of testing which has been a keen addition to their knowledge base.

6. Conclusion

The industrial visit to Trinity NDT and Welding Solutions Pvt Ltd was an enriching experience for the students, bridging the gap between classroom learning and industrial application. It provided them with practical exposure to modern testing and welding processes, quality assurance, and sustainability in engineering. Such visits are instrumental in shaping students' professional outlook and preparing them for future careers in engineering.

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COLLEGE OF ENGINEERING

Department of Mechanical Engineering

Industrial Visit to

Trinity NDT Weld Solutions Pvt Ltd

- 27th November 2024
- 09:30 AM - 4:30 PM
- 3rd Semester Students, ME
- Aspire, #491, Site No 12,
  14th Cross, 4th Phase,
  Peenya Industrial Area
  Bengaluru 560058

Faculty Coordinator
Dr. Sudarshan T A
Senior Assistant Professor

Industrial Visit Coordinator
Dr. Nagabhushana N
Senior Assistant Professor

Convenor
Prof. Rakesh C
HoD - ME

Dr. Manjunatha
Principal

Glimpse of the Industrial Visit